ALGEBRA.

168. Proposed by W. J. GREENSTREET, M. A., Editor of The Mathematical Gazette, Stroud, England.

If n, $n+2$, $n+6$, $n+8$, $n+12$ are all primes, find the form of n.

169. Proposed by JOHN M. COLAW, A. M., Monterey, Va.

Solve $x^2+y+z=a....(1)$,
$x+y^2+z=b....(2)$,
$x+y+z^2=c....(3)$.

GEOMETRY.

191. Proposed by J. V. McADAMS, St. Louis, Mo.

Trisect any angle by means of the hypocycloid.

192. Proposed by ALFRED HUME, C. E., D. Sc., Professor of Mathematics, University of Mississippi, University, Miss.

Of all triangles with a common base and inscribed in the same circle, the isosceles is the maximum and has the maximum perimeter. Prove geometrically.

CALCULUS.

158. Proposed by L. C. WALKER, A. M., Graduate Student, Leland Stanford University, Cal.

It is required to cut a hole a inches square, for a crank shaft, through the center of a grindstone b inches thick at the outer edge, c inches thick at the center, and d inches in diameter. How many cubic inches will have to be cut out?

159. Proposed by F. P. MATZ, Sc. D., Ph. D., Professor of Mathematics and Astronomy in Defiance College, Defiance, Ohio.

Solve $\frac{d^2u}{dx^2}=\frac{1}{m}\left(\frac{du}{dt}\right)$.

MECHANICS.

148. Proposed by G. H. HARVILL, A. M., Malakoff, Texas.

Show that a law of density for points in space may be assumed such that the joint mass of any two points which are *electrical images* of each other in respect to a given sphere may be constant, and that their centers of gravity should lie on the surface of the sphere.

149. Proposed by W. J. GREENSTREET, M. A., Editor of The Mathematical Gazette, Stroud, England.

From two points in the same horizontal line hangs a light inextensible string, on which are threaded two beads of equal mass. The beads start from rest in the position in which the terminal portions of the string are vertical and move symmetrically towards each other in the vertical plane. Find the path of each bead, and the tension of the string at any point in the path.